THELAZIA CALLIPAEDA IN DOGS

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Objective: "Make a literature review about ***Thelazia callipaeda*** parasitation in dogs: an emergent disease."

Figure 1. Parasitized dog by *T. callipaeda*. Source: Miró *et al*., 2011

1. INTRODUCTION

Thelazia callipaeda is a parasitic nematode, that causes **thelaziosis** or "eyeworm disesase".

The infection distribution includes several Asian and European countries, and its spread is related to the vector distribution.

Formerly: "oriental eye worm" → first dates came from Asia and Russia, in the 80s (Bhaibulaya *et al.*, 1970).

DH: dogs, cats, rabbits, wild carnivores and humans (**zoonosis**!)

Location in DH:
- under the 3rd eyelid
- in nasolacrimal ducts
- in conjuntival sac
- in excretory ducts of lacrimal glands

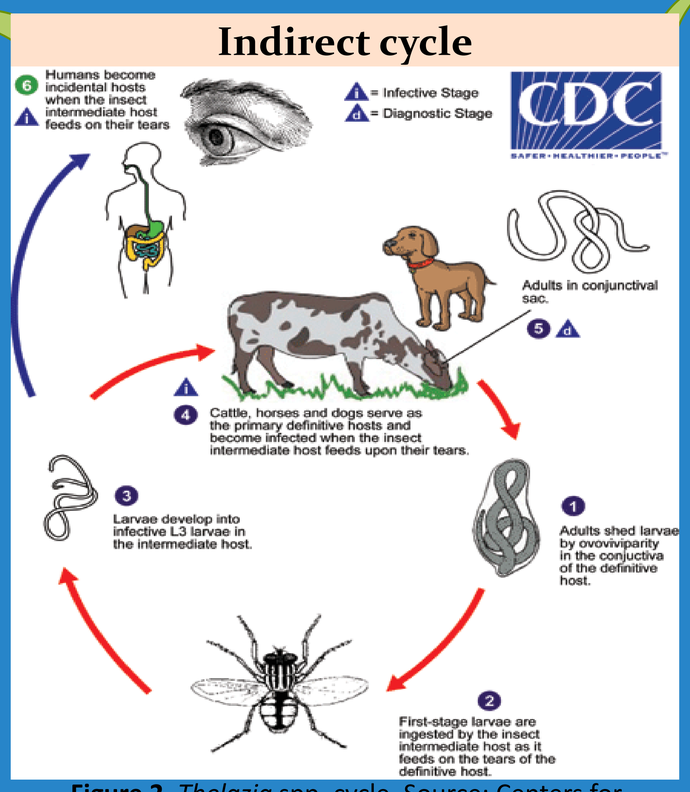

Figure 2. *Thelazia* spp. cycle. Source: Centers for Disease Control and Prevention

IH/vector: transmitted by a non-biting Diptera fly, ***Phortica variegata*** (fruit fly). They feed on conjunctival secretions of DH.

Figure 3. *P. variegata* specimen. Source: www.diptera.info

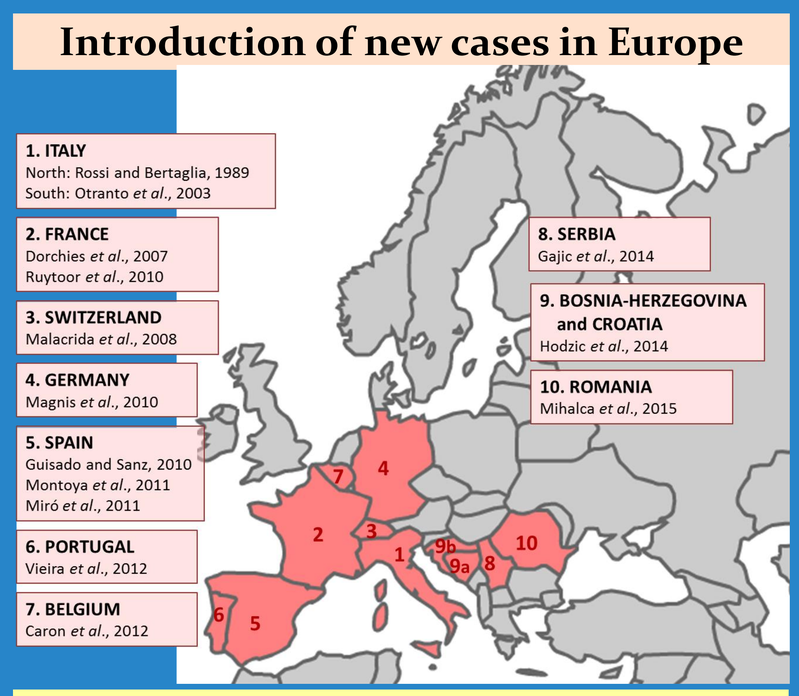

Figure 4

Only 1 haplotype in Europe (**h1**):
↓ genetic variability, well established!
↑ specificity for vector/IH, and ↓ affinity for DH

2. PATHOGENESIS and CLINICAL SIGNS

Clinical signs due to **mechanical damage** caused by the parasite, because of the spicules in his cuticle.

Most common **clinical signs**:
- Moderate epiphfora and blepharospasm
- Mechanics irritant conjunctivitis
- Serous secretion (seromucous/mucopurulent if bact.inf.)

Keep in mind that it can also take asymptomatic form!

Figure 5. Clinical appearance of *T. Callipaeda* parasitation. Source: Mihalca *et al*., 2015

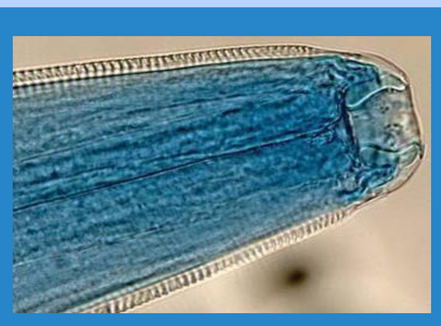

Figure 6. Details of the oral capsule of *T. callipaeda,* and serrated margin of cuticle. Source: Dacal *et al*., 2011

3. DIAGNOSIS

ANAMNESIS + OCULAR EXAMINATION + RESEARCH OF PARASITES

If nematodes are found → collection and identification:
- Morfological through microscope
- Confirmation by molecular characterization (analysis of a part of the sequence of the mitochondrial cox-1) → **h1**

4. THERAPEUTIC PROTOCOL

a) Withdraw nematodes

b) Antiparasitic treatment:

ACTIVE INGREDIENT	DOSE	ADMINISTRATION	REFERENCE
Moxidectin 2,5% + Imidacloprid 10%	2,5 mg/kg	Spot-on	Bianciardi and Otranto, 2005
Moxidectin 1%	6 µg (2 drops/eye)	Local instillation (eye drops)	Lia et al., 2004
Milbemycin oxime	0,70 mg/kg	Oral	Ferroglio et al., 2008
Milbemycin oxime + praziquantel	0,5 mg/kg	Oral	Motta et al., 2012
Ivermectin 1%	200 µg/kg	Subcutaneous	Rossi and Peruccio, 1989
Mebendazole	20 mg/kg	Oral	Calero-Bernal et al., 2014

c) Complementary treatment: topical corticosteroids and Atb eye drops

5. PROPHILAXYS

a) Avoid contacte of the animals with IH

b) Treating infected animals

c) Preventive treatment in dogs that live in endemic areas, or that travel in them:

ACTIVE INGREDIENT	DOSE	GUIDELINE	ADMINISTRATION	REFERENCE
Moxidectin	0,17 mg/kg	Single dose/risk period	Subcutaneous (slow release injection)	Rossi et al., 2007
Ivermectin	0,2 mg/kg	Every 3 weeks	Oral	Fudge et al., 2007
Milbemycin oxime	0,5 mg/kg	Monthly	Oral	Ferroglio et al., 2008
Moxidectin 2,5% + Imidacloprid 10%	2,5 mg/kg	Monthly	Spot-on	Lechal et al., 2015

6. ZOONOTIC POTENTIAL

1st case of human thelaziosis → in 1917, in Beijing (China). Later, numerous cases have been detected in several parts of Asia.

In Europe, 1st cases in 2008, in Italy and France.

In Spain, one case has been detected in a teenager in Cáceres (Extremadura).

Humans → act as **DH**

Treatment: mechanical removal of nematodes → **PREVENTION**!

7. CONCLUSIONS

1. Emerging disease in our country
2. Consider this disease in D/D in cases with ocular signs
3. Zoonotic potential, importance in public health

References:

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